

No.

200400274



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Curators of the University of Missouri

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR OFFERING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Truman'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-fifth day of March, in the year two thousand and five.

Attest:

Bernice
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Malv Johanson
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

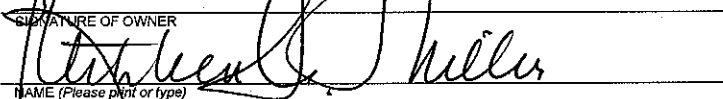
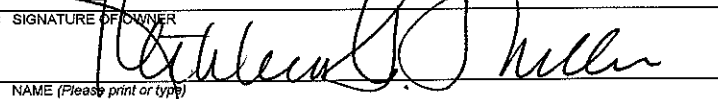
1. NAME OF OWNER The Curators of the University of Missouri		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME MO 980525	3. VARIETY NAME Truman
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 316 University Hall University of Missouri Columbia, MO 65211		5. TELEPHONE (include area code) (573) 882-2388	FOR OFFICIAL USE ONLY PVPO NUMBER 20 0400274 FILING DATE July 23, 2003
		6. FAX (include area code) (573) 882-0010	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) N/A	8. IF INCORPORATED, GIVE STATE OF INCORPORATION	9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Dr. Anne L. McKendry 106 Curtis Hall University of Missouri Columbia, MO 65211			FILING AND EXAMINATION FEES: \$ 3652.00 DATE 7/23/04 CERTIFICATION FEE: \$ 432.00 DATE 1/4/05

11. TELEPHONE (include area code) (573) 882-7708	12. FAX (include area code) (573) 884-7850	13. E-MAIL mckendrya@missouri.edu
14. CROP KIND (Common Name) Wheat, common	16. FAMILY NAME (Botanical) Gramineae	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.
15. GENUS AND SPECIES NAME OF CROP Triticum aestivum L.	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (if "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (if "no", go to item 23)
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER 	SIGNATURE OF OWNER 
NAME (Please print or type) Kathleen M. Miller	NAME (Please print or type) Kathleen M. Miller
CAPACITY OR TITLE Secretary to the Board of Curators	CAPACITY OR TITLE Secretary to the Board of
DATE July 21, 2004	DATE July 21, 2004

(See reverse for instructions and information collection burden statement)

Exhibit A: Origin and Breeding History

'Truman' soft red winter wheat (*Triticum aestivum* L.) (PI 634824) was developed by the Missouri Agricultural Experiment Station. Truman originated from the cross MO 11769/'Madison' which was made in 1990. MO 11769 was from the cross 'Kawvale'/'Vigo'/'Directeur Journee'/3/W7510/4/'NS 314'/'Stoddard'. W7510 is a full sib of 'Hart'. Truman was tested as MO 980525

The F₁ through F₃ generations of the cross MO 11769/Madison were advanced in the field at the Agronomy Research Center near Columbia, MO using the bulk method with no selection. In 1993, F₃-derived F₄ selections were made based on maturity, height, general disease resistance, and over-all plant architecture. Selections were advanced using the pedigree method in 1-m head-rows in 1994 and 1995. During the summer of 1995, head-row 11,010 was bulked and entered into preliminary yield testing in 1996 as the F₅-derived F₇ line MO 960304. MO 960304 was variable for height and maturity and was re-selected in 1996. Truman was an F₇-derived F₈ re-selection from MO 960304. It was grown in an individual head row in 1997, hand harvested and re-entered as an F₉ line in preliminary yield testing in 1998. Truman was tested in the Missouri Winter Wheat Breeding Program from 1998 to the present. It was tested in the Missouri Winter Wheat Performance Trials from 2000 through the present and in the Uniform Eastern Soft Red Winter Wheat Nursery in 2001 and 2002. Truman was released for its high grain yield, good test weight, and broad-based resistance to *Fusarium* head blight [caused by *Fusarium graminearum* Schwabe; telomorph: *Gibberella zeae* Schweinitz (Petch)]. The registration of Truman is currently 'in press' in Crop Science and the first commercial sale will occur in the autumn of 2004.

Purification of Truman was initiated with a single head re-selection from MO 960304 in 1996. An individual head row was grown, hand-harvested and entered into preliminary yield testing in 1997. MO 980525 was re-entered into advanced yield testing in the autumn of 1998. In the summer of 1999, 12 uniform heads were taken from a single plot of MO 980525 for increase and purification. These 12 head rows were planted in the autumn of 1999 as a purification plot. The plot was rogued, primarily for height variants, and re-planted in the autumn of 2000 as an increase strip.

In 2001, seven F₉-derived F₁₂ increase strips approximately 1 m wide and 20 m long were grown by the Missouri Foundation Seed Organization from the purified seed source provided by the breeder. Each was rogued approximately five times for purity. Off-types removed were primarily height variants with lengthened internodes but adhered in all other ways to the description provided in Exhibit C. Truman has been stable and uniform since 2002 (3 generations of increase). No variants were observed during this period. Authorized seed classes are Breeder, Foundation and Certified. Breeder and Foundation seed will be maintained by the Foundation Seed Organization, of the Missouri Agricultural Experiment Station, College of Agriculture Food and Natural Resources, University of Missouri, Columbia MO. Truman will only be sold as certified seed.

Exhibit B: Statement of Distinctness

Truman most closely resembles the variety NK Coker 9663. Both have been grown in the Missouri Winter Wheat Performance Tests since 2000. Data presented are from the Missouri Winter Wheat Performance Tests from 2002 and 2003, Special Reports 542 and 549, respectively, published by the College of Agriculture Food, and Natural Resources, College of Agriculture, University of Missouri, Columbia, MO.

Both Truman and Coker 9663 are soft red winter wheats. Juvenile growth habit for both varieties is semi-erect. Both have comparable adult-plant height, with green plant color. Both have tapering, mid-dense, awnletted, heads with yellow anthers. Both have ovate seeds with a medium, non-collared brush, rounded cheeks, and a mid-deep crease.

The most obvious difference in adult plants of these two varieties is heading date. Across 6 locations of the Missouri Winter Wheat Performance Tests, the mean heading date for Truman was 5, and 6 days later than Coker 9663 in 2002 and 2003, respectively. Data for paired individual location comparisons at Columbia, MO and Portageville, MO for 2002 and 2003 are given in Table 1. Other significant differences include the following: coleoptile color for Truman is white, while that for Coker 9663 is purple; seedling anthocyanin is absent in Truman and present in Coker 9663; anthocyanin is absent in the auricles of Truman and present in Coker 9663.

Table 1. Comparison of the heading dates for Truman and N.K. Coker 9663 grown at Columbia and Portageville, Missouri, in 2002 and 2003.

Variety	Heading date ¹			
	2002		2003	
	Columbia, MO	Portageville, MO	Columbia, MO	Portageville, MO
	----- Julian days) -----			
Truman	132	127	139	130
NK Coker 9663	126	118	133	122
Location mean	127	119	132	121
LSD _(0.05)	1.6	1.4	1.5	1.1
CV%	0.9	0.8	0.6	0.6
Range	125-132	116-127	128-139	118-130
No. of entries	64	64	64	64
Planting date	October 8, 2001	October 30, 2001	October 16, 2002	November 8, 2002
Harvest date	July 1, 2002	June 17, 2002	July 11, 2003	June 24, 2003
Previous crop	Soybeans	Soybeans	Soybeans	Soybeans
Exp. Design	8 × 8 Lattice	8 × 8 Lattice	8 × 8 Lattice	8 × 8 Lattice
Replications	4	4	4	4
Harvested plot size	55 sq. ft.	55 sq. ft.	55 sq. ft.	55 sq. ft.
Nitrogen (fall/spring) per acre	40 lb/72 lb	40 lb/80 lb	40 lb/81 lb	40 lb/80 lb
P ₂ O ₅	62 lb/acre	0	40 lb/acre	0
K ₂ O	47 lb/acre	0	60 lb/acre	0

¹ Heading date was determined as the number of Julian days (after January 1) when 50% of the ears in a given plot had emerged fully from the flag leaf collar.

Description of experimental conditions for data presented:

Truman, (MO 980525) has been yield-tested in Missouri breeding trials since 1998 and in the Missouri Winter Wheat Performance Trials since 2000. The objective of the latter tests is to provide Missouri wheat growers with a reliable, unbiased, up-to-date source of information that will permit valid comparisons among improved wheat varieties from both the private (commercial) and public (university and USDA) sectors. The tests are grown at seven Missouri locations each year. Data in Exhibit B are presented from the 2002 and 2003 Missouri Winter Wheat Performance Tests. In both years, there were 64 entries in the test. Entries were arranged in an 8×8 lattice design with 4 replications at each location. Test plots consisted of a 15-foot, 6-row plot with 7-inch row spacing. At harvest, plots were trimmed to 12 feet. All entries were seeded at approximately 1.5 million seeds per acre. Actual seeding rates (1850 seeds per plot) for each entry were determined from the thousand kernel weights of each entry and were not adjusted for germination.

Agronomic practices:

At all locations, wheat followed soybeans. Planting date was in accordance with the Hessian fly-free date for Missouri, which ranges from October 1 in north Missouri through October 30 in south Missouri. Actual planting dates varied with weather and are given for the 2002 and 2003 crop years in Exhibit B. Harvest dates in Missouri range from mid-June to mid-July. Actual harvest dates varied with weather and are given for 2002 and 2003 in Exhibit B. At all sites, nitrogen was applied in split fall/spring applications with spring nitrogen applications made at or shortly after initial green-up (Feeke's growth stage 6). Actual amounts are provided in Exhibit B. Pre-plant phosphorous and potassium applications were made according to soil test recommendations for each location.

Statistical analysis:

Data for individual locations were analyzed using a lattice design. Mean comparisons were made using Fisher's protected least significant difference (LSD) at the 0.05 probability level ($P = 0.05$). Coefficients of variation (CV%) were calculated from the analyses of variance of each location.

Public availability of data:

Data are available to the public through two different media. Data are published as Special Reports from the College of Agriculture, Food, and Natural Resources, University of Missouri, Columbia. For 2002 and 2003 these were Special Reports 542 and 549, respectively. Hard copies of these special reports were distributed to all cooperating breeders (both public and private) as well as to all wheat growers in Missouri. Data from these publications are also available through the MU Agricultural Electronic Bulletin Board (AgEBB) web site. Complete test results may be accessed under crop performance testing at <http://agebb.missouri.edu/cropperf/>.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 328-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S) The Curators of the University of Missouri	TEMPORARY OR EXPERIMENTAL DESIGNATION MO 980525	VARIETY NAME Truman
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) 316 University Hall University of Missouri Columbia, MO 65211		FOR OFFICIAL USE ONLY PVPO NUMBER 20 0400274

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., 0 9 9 or 0 9) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: . Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

1	1 = Common
	2 = Durum
	3 = Club
	4 = Other (Specify) _____

2. VERNALIZATION:

2	1 = Spring
	2 = Winter
	3 = Other (Specify) _____

3. COLEOPTILE ANTHOCYANIN:

1	1 = Absent	2 = Present
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4. JUVENILE PLANT GROWTH:

2	1 = Prostrate	2 = Semi-Erect	3 = Erect
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5. PLANT COLOR: (boot stage)

2	1 = Yellow-Green
	2 = Green
	3 = Blue-Green

6. FLAG LEAF: (boot stage)

2	1 = Erect	2 = Recurved
1	1 = Not Twisted	2 = Twisted
1	1 = Wax Absent	2 = Wax Present

7. EAR EMERGENCE:

1 3 4	Number of Days (Average)	
N A	Number of Days Earlier Than	* None tested in same trial
	Same As	* Cardinal
0 6	Number of Days Later Than	* Coker 9663

*Relative to a Commercial Variety Grown in the Same Trial

8. ANTHOR COLOR:

1	1 = Yellow	2 = Purple
---	------------	------------

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

cm (Average)

cm Taller Than

Ernie

*

Same As

Coker 9663

*

cm Shorter Than

None tested in same trial

*

10. STEM:

A. ANTHOCYANIN

1 = Absent 2 = Present

B. WAXY BLOOM

1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

1 = Absent 2 = Present

D. INTERNODE

1 = Hollow 2 = Semi-Solid 3 = Solid

Number of Nodes

E. PEDUNCLE

1 = Erect 2 = Recurved 3 = Semi-Erect

cm Length

F. AURICLE

Anthocyanin 1 = Absent 2 = Present

Hair: 1 = Absent 2 = Present

11. HEAD: (at maturity)

A. DENSITY

1 = Lax
2 = Mid-dense (Laxidense)
3 = Dense

B. SHAPE

1 = Tapering
2 = Strap
3 = Clavate
4 = Other (Specify) _____

C. CURVATURE

1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

1 = Awnless
2 = Apically Awnletted
3 = Awnletted
4 = Awned

12. GLUMES: (at maturity)

A. COLOR

1 = White
2 = Tan
3 = Other (Specify) _____

B. SHOULDER

1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (Specify) _____

C. SHOULDER WIDTH

1 = Narrow
2 = Medium
3 = Wide

D. BEAK

1 = Obtuse
2 = Acute
3 = Acuminate

E. BEAK WIDTH

1 = Narrow
2 = Medium
3 = Wide

F. GLUME LENGTH

1 = Short (ca. 7mm)
2 = Medium (ca. 8mm)
3 = Long (ca. 9mm)

G. WIDTH

1 = Narrow (ca. 3mm)
2 = Medium (ca. 3.5mm)
3 = Long (ca. 4mm)

13. SEED:

A. SHAPE

- ☐ 1 = 1 = Ovate
☐ 2 = 2 = Oval
☐ 3 = 3 = Elliptical

B. CHEEK

- ☐ 1 = 1 = Rounded
☐ 2 = 2 = Angular

C. BRUSH

- ☐ 2 = 1 = Short
☐ 2 = 2 = Medium
☐ 3 = 3 = Long
- ☐ 1 = 1 = Not Collared
☐ 2 = 2 = Collared

D. CREASE

- ☐ 1 = 1 = Width 60% or less of Kernel
☐ 2 = 2 = Width 80% or less of Kernel
☐ 3 = 3 = Width Nearly as Wide as Kernel
- ☐ 2 = 1 = Depth 20% or less of Kernel
☐ 2 = 2 = Depth 35% or less of Kernel
☐ 3 = 3 = Depth 50% or less of Kernel

E. COLOR

- ☐ 3 = 1 = White
☐ 2 = 2 = Amber
☐ 3 = 3 = Red
☐ 4 = 4 = Other (Specify) _____

F. TEXTURE

- ☐ 2 = 1 = Hard
☐ 2 = 2 = Soft
☐ 3 = 3 = Other (Specify) _____

G. PHENOL REACTION

- ☐ 4 = 1 = Ivory
☐ 2 = 2 = Fawn
☐ 3 = 3 = Light- Brown
☐ 4 = 4 = Dark- Brown
☐ 5 = 5 = Black

H. SEED WEIGHT

- ☐ 3 ☐ 3 = g/1000 Seed (whole number only)

I. GERM SIZE

- ☐ 2 = 1 = Small
☐ 2 = 2 = Mid-Size
☐ 3 = 3 = Large

14. DISEASE: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

- | | |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Stem Rust (<i>Puccinia graminis</i> f. sp. <i>tritici</i>) | <input type="checkbox"/> 1 Leaf Rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>) |
| <input type="checkbox"/> 2 Stripe Rust (<i>Puccinia striiformis</i>) | <input type="checkbox"/> 0 Loose Smut (<i>Ustilago tritici</i>) |
| <input type="checkbox"/> 1 Tan Spot (<i>Pyrenophora tritici-repentis</i>) | <input type="checkbox"/> 0 Flag Smut (<i>Urocystis agropyri</i>) |
| <input type="checkbox"/> 0 Halo Spot (<i>Selenophoma donacis</i>) | <input type="checkbox"/> 0 Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>) |
| <input type="checkbox"/> 3 <i>Septoria nodorum</i> (Glume Blotch) | <input type="checkbox"/> 0 Dwarf Bunt (<i>Tilletia controversa</i>) |
| <input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease) | <input type="checkbox"/> 3 Karnal Bunt (<i>Tilletia indica</i>) |
| <input type="checkbox"/> 3 <i>Septoria tritici</i> (Speckled Leaf Blotch) | <input type="checkbox"/> 1 Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>) |
| <input type="checkbox"/> 2 Scab (<i>Fusarium</i> spp.) See Exhibit D | <input type="checkbox"/> 0 "Snow Molds" |
| <input type="checkbox"/> 0 "Black Point" (Kernel Smudge) | <input type="checkbox"/> 0 Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> 1 Barley Yellow Dwarf Virus (BYDV) | <input type="checkbox"/> 1 Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>) |
| <input type="checkbox"/> 3 Soilborne Mosaic Virus (SBMV) | <input type="checkbox"/> 3 Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>) |
| <input type="checkbox"/> 1 Wheat Yellow (Spindle Streak) Mosaic Virus | <input type="checkbox"/> 0 Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) |
| <input type="checkbox"/> 1 Wheat Streak Mosaic Virus (WSMV) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Other (Specify) _____ | <input type="checkbox"/> Other (Specify) _____ |

15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- | | |
|--------------------------------------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> 1 Hessian Fly (<i>Mayetiola destructor</i>) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Stem Sawfly (<i>Cephus</i> spp.) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Cereal Leaf Beetle (<i>Oulema melanopa</i>) | <input type="checkbox"/> Other (Specify) _____ |

15. INSECT: (continued) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant

PLEASE SPECIFY BIOTYPE (Where Needed)

<input type="checkbox"/> 0	Russian Aphid (<i>Diuraphis noxia</i>)	<input type="checkbox"/>	Other (Specify) _____
<input type="checkbox"/> 0	Greenbug (<i>Schizaphis graminum</i>)	<input type="checkbox"/>	Other (Specify) _____
<input type="checkbox"/> 0	Aphids	<input type="checkbox"/>	Other (Specify) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

Exhibit D: - Additional Description of the Variety

Although immunity to *Fusarium* head blight (scab) [caused by *Fusarium graminearum* Schwabe; telomorph: *Gibberella zeae* Schweinitz (Petch)] is not known in any wheat variety globally, partial resistance is known. Truman has been widely tested and is considered to have a very high level of resistance. In assessments made in from 3 to 9 locations of the 2001 Northern Uniform Winter Wheat Scab Nursery, Truman was one of only 2 entries (of 49 tested) with low scores for all measures of disease assessment (Table 2). Truman had the lowest disease severity, disease incidence, disease index (incidence x severity), and percent scabby kernels of any entry tested. It was not significantly different from the lowest entry for kernel rating, toxin (deoxynivalenol) level, and greenhouse severity rating. The other variety with low scores for all measures of disease resistance assessment was the experimental line MO 981020, an early maturing sib of Truman, also developed at the University of Missouri.

Table 2. Data, comparing *Fusarium* head blight (scab) measures of resistance in Truman to resistant (Ernie, Freedom) and susceptible (Patterson, Pioneer Variety 2545) check cultivars. Data were extracted from the 2001 Northern Uniform Winter Wheat Scab Nursery, Ohio State University, OARDC, Horticulture and Crop Science Series 690, p.10.

Entry	Resistance trait ¹						
	SEV	INC	IND	KR	SS	DON	SEV-GH
	-----%	-----%		0-100	%	ppm	%
Patterson	38.4 (h) ²	61.6 (h)	34.1 (h)	31.0 (l)	14.7 (l)	6.9 (l)	52.4
Pioneer 2545	39.8 (h)	71.4 (h)	40.7 (h)	66.5 (h)	26.8 (h)	16.2 (l)	55.8
Ernie	20.1 (l)	51.4	19.4	29.9 (l)	16.9 (l)	7.9 (l)	28.7
Freedom	21.4	62.8 (h)	21.8	50.1	17.5 (l)	12.6 (l)	30.5
Truman	11.8 (l)	34.6 (l)	7.5 (l)	23.0 (l)	5.4 (l)	5.3 (l)	14.3 (l)
Test mean	24.6	57.5	22.6	42.0	18.4	11.9	46.3
LSD _(0.05)	9.3	15.0	10.5	17.1	15.0	14.2	18.9
Locations	9	8	8	4	3	3	5

¹Codes for resistance traits are as follows:

SEV = disease severity from field tests, determined as % of infected spikelets in an infected head

INC = disease incidence, determined as % of heads with a least one infected spikelet

IND = (SEV × INC)/100

KR = kernel rating determined visually as the percentage of infected kernels in grain samples from inoculated plots

SS = percentage of scabby seeds by weight in grain samples from inoculated plots.

DON = parts per million of deoxynivalenol (vomitoxin) determined in grain samples assayed by Dr. Pat Hart, Michigan State University

SEV-GH = disease severity (type II resistance) from point inoculations with *Fusarium graminearum* conducted in the greenhouse

² Each resistance value for each of the 49 test entries was compared to the lowest (l) and highest (h) value in each column using the LSD_(0.05). Where the value is followed by a (l) the variety was not different from the best (most resistant) entry in the test while a value followed by a (h) meant that the variety was as susceptible as the most susceptible entry in the test. Those with no letter were intermediate.

Milling and Baking Quality of 'Truman'

Truman was entered in the Uniform Eastern Soft Red Winter Wheat Nursery (UESRWWN) in both 2001 and 2002. End-use quality evaluations reported below were conducted by the USDA-ARS Soft Wheat Quality Laboratory at Wooster, OH in both years in conjunction with those nurseries. Comparisons were made against check varieties in the UESRWWN in both years. These included Caldwell, which has above average milling and baking quality overall, Foster which has very good milling quality, Patton, which has average milling and baking quality and Roane which tends to have poor milling and baking quality. Overall, Truman is considered to have acceptable soft wheat milling and baking quality. Baking quality is slightly better than Patton while milling quality is poorer than Patton but better than Roane. Data is available to the public at: <http://www.ars-grin.gov/ars/PacWest/Aberdeen/uniform.html>.

Table 3. Milling quality data for Truman compared to check varieties in the Uniform Eastern Soft Red Winter Wheat Nurseries grown in the 2001 and 2002 crop years.

Variety	Milling quality score		Flour yield		Softness equivalent	
	2001	2002	2001	2002	2001	2002
	----- % -----		g/kg ⁻¹		-----g kg ⁻¹ -----	
Caldwell	104.1	100.0	72.7	71.8	57.8	59.1
Foster	104.5	101.6	74.4	74.0	54.8	53.2
Patton	100.0	90.8	72.0	70.4	55.4	53.3
Roane	91.6	86.6	69.6	68.9	55.7	54.7
Truman	94.0	87.8	70.9	69.6	52.9	53.1

Table 4. Baking quality data for Truman compared to check varieties in the Uniform Eastern Soft Red Winter Wheat Nurseries grown in the 2001 and 2002 crop years.

Variety	Baking quality score		Protein		AWRC [†]		Cookie diameter		Lactic acid	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
	----- % -----		g/kg ⁻¹		g/kg ⁻¹		----- cm -----		-----g/kg ⁻¹ -----	
Caldwell	110.0	100.0	8.4	8.7	56.9	60.3	18.7	18.2	104.7	111.5
Foster	107.0	94.9	9.3	9.4	56.9	57.1	18.5	18.1	102.1	99.5
Patton	99.9	82.8	8.9	9.6	60.4	61.9	18.2	17.8	80.8	94.6
Roane	78.4	54.3	8.4	9.6	61.7	65.4	17.2	16.8	113.2	117.1
Truman	100.6	83.6	8.4	9.2	59.6	60.3	18.2	17.7	104.3	103.1

[†]Alkaline water retention capacity

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) The Curators of the University of Missouri	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER MO 980525	3. VARIETY NAME Truman
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 316 University Hall University of Missouri Columbia, MO 65211	5. TELEPHONE (Include area code) (573) 882-2388	6. FAX (Include area code) (573) 882-0010
7. PVPO NUMBER 20 0400274		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☒ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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